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☐ 1. Document ID: US 6101274 A

L6: Entry 1 of 29 File: USPT Aug 8, 2000

DOCUMENT-IDENTIFIER: US 6101274 A
TITLE: Method and apparatus for detecting and interpreting textual captions in digital video signals

ABPL:
A computer-implemented method for the identification and interpretation of text captions in an encoded video stream of digital video signals comprises sampling by selecting frames for video analysis, decoding by converting each of frames selected into a digitized color image, performing edge detection for generating a grey scale image, binarizing by converting the grey scale image into a bi-level image by means of a thresholding operation, compressing groups of consecutive pixel values in the binary image, mapping the consecutive pixel values into a binary value, and separating groups of connected pixels and determining whether they are likely to be part of a text region in the image or not.

BSPR:
method for the identification and interpretation of text captions in an encoded video stream of digital video signals, the method comprises sampling by selecting frames for video analysis; decoding by converting each of frames selected into a digitized color image; performing edge detection for generating a grey scale image; binarizing by converting the grey scale image into a bi-level image by apparatus of a thresholding operation; compressing groups of consecutive pixel values in the binary image; mapping the consecutive pixel values into a binary value; and separating groups of connected pixels and determining whether they are likely to be part of a text region in the image or not.

BSPR:
In accordance with a further aspect of the invention, a computer-implemented method for the identification and interpretation of text captions in an encoded video stream of digital video signals, comprises: sampling by selecting frames for video analysis; decoding by converting each of frames selected into a digitized color image; separating each the digitized color image into three color images corresponding to three color planes; performing edge detection on each of the color planes for generating a respective grey scale image for each of the color planes; applying a thresholding image to each of the grey scale images so as to produce three respective binary edge images; combining the three binary edge images to obtain a single combined binary edge image; compressing groups of consecutive pixel values in the combined binary image; mapping the consecutive pixel values into a binary value; and separating groups of connected pixels and determining whether they are likely to be part of a text region in the image or not.

CCOR:
382/176

CCXR:
382/292

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

☑ 2. Document ID: US 6091511 A

L6: Entry 2 of 29 File: USPT Jul 18, 2000

DOCUMENT-IDENTIFIER: US 6091511 A
TITLE: Images with spatially varying spatial and gray level resolution

BSPR:
In a preferred embodiment of the invention, the detection circuit or algorithm includes edge detection circuitry or an edge-detection algorithm which analyzes sub-arrays of the digital image, for example 4 pixel by 4 pixel sub-arrays of the digital image. An "edge" sub-array is detected when the gray level contrast within the analyzed sub-array exceeds a predetermined threshold. A "non-edge" sub-array is detected when the gray level contrast within the analyzed sub-array is below the predetermined threshold. The gray level contrast may be defined, for example, as the difference or the ratio or any other suitable relation between the highest gray level and the lowest gray level within the analyzed sub-array. Subsequently, the "edge" sub-arrays are represented using the high resolution, low-gray level, representation and the "non-edge" sub-arrays are represented using the low resolution, high gray level, representation. This yields a compressed digital image having a reduced total amount of digital data, wherein a high resolution is maintained in the "edge" portions where the gray level range can generally be compromised, and herein a wide gray level range is maintained in the "non-edge" portions

CCOR:
358/1.9

CCXR:
358/458

CCXR:
382/266

CCXR:
382/274

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

☑ 3. Document ID: US 6034700 A

L6: Entry 3 of 29 File: USPT Mar 7, 2000

DOCUMENT-IDENTIFIER: US 6034700 A
TITLE: Efficient run-based anti-aliasing

BSPR:
A system for reducing the amount of jaggedness (anti-aliasing) of the edges of text or synthetic graphics that are angularly close to the horizontal (fast scan direction) by using the different run boundaries in a run length encoding of the compressed text or graphic to generate edge pixels that are intermediate shades of gray.

BSPR:
An improved method of reducing jaggies at lower cost is to generate gray pixels at the ends of pixel runs in the horizontal direction directly from the run length compressed text, to produce blurred edges. A run-based approach can take advantage of two characteristics of run-length encoding to greatly reduce the processing required. First, gray pixels on near-horizontal edges (up to 45.degree.) can be produced by determining where the edge is, and by estimating the slope on the basis of the lengths of adjacent runs. Using this information, numbers of gray pixels can be printed in increasing or decreasing levels of darkness on each side of the edge to blur the jaggedness.

CCXR:
382/245

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 4. Document ID: US 6026196 A

L6: Entry 4 of 29 File: USPT Feb 15, 2000

DOCUMENT-IDENTIFIER: US 6026196 A
TITLE: Utilizing a contrived dither matrix to enhance the compressibility of raster images

DEPR:
During the development of this present invention, several alternatives were considered for the location of base data to extract predicted row data. Some of the alternatives were to look back 4 rows and over 4 pixels, to look back 8 pixels within the current row, to look back 8 rows, and to look back 16 rows. Looking back 16 rows was a good choice for images that are scaled up by more than a ratio of 16:1 because every row was guaranteed to match a row either back 16 lines or ahead 16 lines. The scheme of looking back 16 rows was rejected because images that are scaled that much already compress fairly well. Images that are scaled by a factor grater than 8 may also be sent as source images due to I/O load balancing. Looking back 4 lines and over 4 pixels did not compress very well for some levels of gray and did not take advantage of compressing vertical edges. Looking back 4 pixels or back 8 pixels on the same line did not add considerably to the overall compression ratio because those situations were taken care of by RLE indexed control bytes. It was empirically determined that looking back 8 lines for the base line made the best choice for high resolution raster images. An alternative would be to use the scaling factor to determine the location of the base row of data for the compressor and decompressor. The base row would be 16 lines back for images that are scaled by a factor of 16 or more, and 8 lines back for all other images. This would make a good alternative for printers that are not capable of dithering raster images. For those products, all images are scaled and dithered by the driver, regardless of scaling factor.

CCOR:
382/237

CCXR:
358/456

CCXR:
358/457

☐ 5. Document ID: US 5539842 A

L6: Entry 5 of 29 File: USPT Jul 23, 1996

DOCUMENT-IDENTIFIER: US 5539842 A
TITLE: Method and apparatus for compressing and decompressing images of documents

DEPR:
Various parameters may be adjusted for particular applications to improve performance of the present invention. For instance, in the case of binarization heuristic, decreasing the edge mismatch artifacts improves compression quality. With respect to the white-gray-black thresholds, decreasing the edge mismatch artifacts improves compression quality. With respect to model base and other alternative codings for the binary image can be changed to improve binary compression. Adjusting the white and black levels for binary images can improve the JPEG compression/image quality. With respect to the point spread convolution kernel, matching scanner can improve JPEG compression/image quality. With respect to the visual masking convolution kernel, JPEG compression/image quality can be improved. Adjustments to the visual masking distance from the edge rule improves JPEG compression/image quality. Adjusting the JPEG quantization for a difference images improves the JPEG compression/image quality. Also, adjusting Huffman tables for difference images improves JPEG compression.

CCOR:
382/232

CCXR:
348/432.1

CCXR:
382/233

CCXR:
382/260

☐ 6. Document ID: US 5432870 A

L6: Entry 6 of 29 File: USPT Jul 11, 1995

DOCUMENT-IDENTIFIER: US 5432870 A
TITLE: Method and apparatus for compressing and decompressing images of documents

DEPR:
Various parameters may be adjusted for particular applications to improve performance of the present invention. For instance, in the case of binarization heuristic, decreasing the edge mismatch artifacts improves compression quality. With respect to the white-gray-black thresholds, decreasing the edge mismatch artifacts improves compression quality. With respect to model base and other alternative codings for the binary image can be changed to improve binary compression. Adjusting the white and black levels for binary images can improve the JPEG compression/image quality. With respect to the point spread convolution kernel, matching scanner can improve JPEG compression/image quality. With respect to the visual masking convolution kernel, JPEG compression/image quality can be improved. Adjustments to the visual masking distance from the edge rule improves JPEG compression/image quality. Adjusting the JPEG quantization for a difference images improves the JPEG compression/image quality. Also, adjusting Huffman tables for difference images improves JPEG compression.

CCOR:
382/232

CCXR:
358/432

CCXR:
382/260

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

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☐ 7. Document ID: US 5416857 A

L6: Entry 7 of 29 File: USPT May 16, 1995

DOCUMENT-IDENTIFIER: US 5416857 A
TITLE: Apparatus and method for compressing data while retaining image integrity

BSPR:
Examples of apparatus and method for compressing image data appear in the prior art. U.S. Pat. No. 4,369,463 describes a quantizer which uses adjacent pixel information in an error feedback predictor to compress data. The article entitled Logarithmic Range Differential Pulse Coded Modulation, as appears in the IBM Technical Disclosure Bulletin, Vol. 29, No. 1, Jun. 1986, pp. 375-378, describes video image data compression in the manner defined by the title. The article entitled Vertical Reference Coding for Digital Gray-Level Images, as appears in the IBM Technical Disclosure Bulletin, Vol. 22, No. 7, December 1979, pp. 2980-2985, describes gray scale image data compression using vertical redundancy characteristics. U.S. Pat. No. 4,532,651 uses a gray scale filter to selectively and permanently remove the least significant bit of data, in reliance upon adjacent pixel information, to accomplish image compression. U.S. Pat. No. 4,546,385 compresses image data using bit planes and retaining gray scale data only at the edges of black/white regions as determined by a comparison of the bit planes. U.S. Pat. No. 4,725,885 compresses data using history data to adjust the selection of the reduced range of magnitudes assigned each pixel position. Lastly, recently issued U.S. Pat. No. 5,081,450 compresses video data by combining chrominance and luminance at individual adjusted larger levels of granularity.

CCOR:
382/237

CCXR:
348/401.1

CCXR:
348/409.1

CCXR:
358/430

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 8. Document ID: US 5323235 A

L6: Entry 8 of 29 File: USPT Jun 21, 1994

DOCUMENT-IDENTIFIER: US 5323235 A
TITLE: Aspect ratio converting apparatus and method

BSPR:
FIG. 4 shows an example of a display in the wide mode. In the wide mode, a side panel image 22 having a smaller width is inserted into a region S2. If there is no picture information at the side ends of the picture region 10, an offensive black line 24 indicating that there is no data is displayed on the boundary between the compressed picture 21 and the gray side panel image 22.

CCOR:
348/445

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 9. Document ID: US 5220508 A

L6: Entry 9 of 29 File: USPT Jun 15, 1993

DOCUMENT-IDENTIFIER: US 5220508 A
TITLE: Position and heading detecting device for self controlled vehicle

BSPR:
Since the edge segment extracting means 2 compresses the inputted image and takes a grey edge segment necessary for searching the guide sign, searching processing of the guide sign can be performed easily at high speed by the guide sign searching means 3 at next stage. Thereby use of the edge segments having relatively high conservation property with respect to environment conditions becomes possible, and application range of the device can be extended.

DEPR:
Since the edge segment extracting means 2 extracts a grey edge segment and outputs the list data L comprising the start point (Sps.sub.k, Sqs.sub.k), the end point (Spe.sub.k, Sqe.sub.k), length sk, gradient Sgr.sub.k of the segment in the coordinate system on the image input surface, whereby it compresses and takes only the edge segment necessary for searching the guide signs among the input image data with much information, the searching processing of the guide signs can be performed easily at high speed by the guide sign searching means 3 at next stage. Thereby use of the edge segment sign having relatively high reservation for environment condition becomes possible, and the application range of the device can be extended.

CCXR:
348/119

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 10. Document ID: US 5132786 A

L6: Entry 10 of 29 File: USPT Jul 21, 1992

DOCUMENT-IDENTIFIER: US 5132786 A
TITLE: Color converting system for image processing equipment

BSPR:
For example, the range for Y (low density) on the coating paper is from 34 to 48 in FIG. 52(a), but the range for Y (low density) on the same coating paper is from 6 to 12 in FIG. 52(b). Similarly, the range for C (low density) on the coating paper is from 40 to 78 in FIG. 52(b) while the range of C (high density) on the PPC paper is from 116 to 158 in the same figure, thus presenting a wide range of dispersion. Therefore, if the threshold values are to be set in such a way as to include all these values in the range of recognition, the threshold value for Y will be in the range from 0 to 54, that for M will be in the range from 0 to 50, and that for C will be in the range from 40 to 255. However, these three ranges of threshold value commonly include the range from 40 to 50, with a result that gray (highlight gray) will be recognized in this range. In other words, the part in highlight gray in halftone images on an original sheet in black and white will be recognized erroneously as the color of the marker. As a result, mistakes in the pickup and drop of the marker will take place, so that defects in the highlight part will eventually be conspicuous. That is, some image data is erroneously recognized as a marker and recognition of the marker is failed. Consequently, there occurs the problem that the highlight part in the image data is deleted as a result of the erroneous recognition of that part as a marker, or an area other than the area for editing is subjected to an editing operation. On one hand, part of the marking is output (recorded), without being deleted. The upper-limit portions of Y and M, as well as the lower-limit portion of C may be compressed in order to eliminate the erroneous recognition of this highlight gray, but then there arises another problem of the pickup error in which a marker with a thinned edge area, for example, fails to be recognized and is eventually recorded in the course of the main scanning process.

CCOR:
358/500

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 11. Document ID: US 5103306 A

L6: Entry 11 of 29 File: USPT Apr 7, 1992

DOCUMENT-IDENTIFIER: US 5103306 A
TITLE: Digital image compression employing a resolution gradient

DEPR:
By example, if eight bit data is output from the A/D 36 the Log Mapper 34a achieves a 25:1 reduction in pixel count. The gray scale remapped pixel output is applied to Edge Detector 38 where each remapped pixel eight bit gray scale value is reduced to but a single bit for indicating the presence or the absence of a feature edge, thereby achieving a further 8:1 compression. The color Log Mapper 34b reduces the number of pixels while maintaining the same number of bits of resolution per pixel.

CCOR:
348/400.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 12. Document ID: US 4982294 A

L6: Entry 12 of 29 File: USPT Jan 1, 1991

DOCUMENT-IDENTIFIER: US 4982294 A
TITLE: Apparatus for enhancing and thresholding scanned microfilm images and methods for use therein

DEPR:
A block diagram of one embodiment of a microfilm scanning and image enhancement system, which is constructed in accordance with the teachings of the present invention, for use in, for example, the KIMS system is depicted in FIG. 1. In essence, the inventive system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The inventive system advantageously forms part of an automated microfilm reader commonly known as a film library (previously known as an autoloader) which forms part of a KIMS instrument. Image enhancement, including noise removal and edge sharpening, is provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm. The output of circuit 40 is routed, via lead 49, to compressor 50 for video compression prior to being transmitted, via network interface 60 and lead 65, over a local area network that forms part of the KIMS system.

CCOR:
358/465

CCXR:
358/466

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 13. Document ID: US 4965679 A

L6: Entry 13 of 29 File: USPT Oct 23, 1990

DOCUMENT-IDENTIFIER: US 4965679 A
TITLE: Method for electronically duplicating film images while maintaining a high degree of image quality

DEPR:
A block diagram of one embodiment of a microfilm scanning and image duplication system is depicted in FIGS. 1A-1C. In essence, the system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The system includes noise removal and edge sharpening, provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm or document. The output of circuit 40 is routed, via lead 49, to counters 60, 62, 64 and 66 and then for storage in a memory.

CCOR:
358/462

CCXR:
358/447

CCXR:
358/455

CCXR:
358/463

CCXR:
358/487

CCXR:
382/100

CCXR:
382/169

CCXR:
382/263

☐ 14. Document ID: US 4941190 A

L6: Entry 14 of 29 File: USPT Jul 10, 1990

DOCUMENT-IDENTIFIER: US 4941190 A
TITLE: Method and system for enhancement of a digitized image

BSPR:
The concept of varying parameters similar to a and b throughout the scan of the image based on certain local properties of the image has been studied and several patents (H. Kato et al U.S. Pat. Nos. 4,315,318 and 4,317,179 and M. Ishida et al U.S. Pat. No. 4,346,409) have disclosed particular relationships between the parameters and the values of D.sub.i or D which can give further image enhancement. These techniques do not, however, distinguish between noise and image edges as far as enhancement is concerned, and the higher the image value D.sub.i or D, the greater the enhancement. In other technology areas, similar approaches have been made. Thus in E. Alparslau and F. Ince IEEE Vol. SMC-11, 376-384 (1981) images are treated with an edge enhancement algorithm based in part on an adaptive parameter determined by the difference between the maximum and minimum pixel values in the window at any point. U.S. Pat. No. 4,334,244 discloses an image enhancement system wherein a running average of a group of digitized samples of a video signal and a median of a group of digitized samples are processed to provide a gradient sample. The gradient sample is scaled according to the noise level of the video signal. The scaled sample gradient is multiplied by the difference between the median and running average samples and added to the average sample to generate an output sample. The output samples are converted into an enhanced video signal. It is known also that analog photographic images can be modified. They can be enlarged, combined, and have the contrast in some areas enhanced and in other areas reduced (smoothed). These same results can be achieved by the digital processing of digital images. In addition, digital image processing can modify images in many important ways that analog processing can not. Edge enhancement, noise filtering, gray scale stretching or compressing, and color correction are a few of the techniques available to digitally improve the perception of an image.

CCOR:
382/264

CCXR:
348/625

CCXR:
358/447

CCXR:
358/464

CCXR:
382/288

CCXR:
382/308

☑ 15. Document ID: US 4910608 A

L6: Entry 15 of 29 File: USPT Mar 20, 1990

DOCUMENT-IDENTIFIER: US 4910608 A
TITLE: Imagery data compression mechanism employing adaptive vector quantizer

BSPR:
In accordance with the present invention, the complexity and performance shortcomings of conventional imagery encoding mechanisms described above are obviated by a new and improved imagery data compression mechanism that does not require the use of a predetermined training sequence and which is adaptive from image to image and within the image itself, so that edge orientations and grey levels are preserved. For this purpose, in accordance with the compression mechanism of the present invention, an array of imagery representative (pixel) data is divided into a plurality of contiguous blocks of data, each of which is then encoded, using a block truncation coding mechanism, into a bit map "m" and an associated pair of threshold values "a" and "b". The bit map "m" provides an array of binary encoded imagery data-representative vector combinations. Each bit map vector combination is further subdivided into a set of adjacent sub-blocks of reduced (e.g. four bits per sub-block code resolution. Each sub-block of binary data values defines a vector that is examined to determine whether or not it is associated with a prescribed attribute (e.g. an edge) of the image. If the vector is associated with a prescribed attribute, a (four bit) code representative of that attribute is generated. If the vector is not associated with a prescribed attribute of the image (as in the case of bits randomly distributed due to noise), prescribed portions of the vector are inverted to derive modified vectors that are associated with prescribed image attributes. For each such modified vector a corresponding (four bit) code is generated. Using each of these corresponding codes, image data is effectively reconstructed and then compared with the original image data. That modified vector which results in the minimum error between the reconstructed image data and the original data is then used to generate a prescribed binary output code that is representative of an associated attribute of the image. The binary output codes of a respective block of imagery data are then assembled and, together with the threshold values for that block of data, transmitted as a combined output code. At the receiver site, the image data is reconstructed using a look-up table mechanism in accordance with a translated bit map and the transmitted threshold values.

DEPR:
As will be appreciated from the foregoing description, the complexity and performance shortcomings of conventional imagery encoding mechanisms are obviated by an imagery data compression mechanism that does not require the use of a predetermined training sequence and which is adaptive from image to image and within the image itself, so that edge orientations and grey levels are preserved. Advantageously, because the compression mechanism of the present invention transmits output codes that are associated only with prescribed attributes of an image, the invention has an inherent enhancement property in that it tends to eliminate isolated data, while preserving contiguous data.

CCOR:
358/433

CCXR:
358/447

CCXR:
358/463

CCXR:
382/253

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 16. Document ID: US 4903141 A

L6: Entry 16 of 29 File: USPT Feb 20, 1990

DOCUMENT-IDENTIFIER: US 4903141 A
TITLE: Apparatus for electronically duplicating film images while maintaining a high degree of image quality

DEPR:
A block diagram of one embodiment of a microfilm scanning and image duplication system is depicted in FIGS. 1A-1C. In essence, the system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The system includes noise removal and edge sharpening, provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm or document. The output of circuit 40 is routed, via lead 49, to counters 60, 62, 64 and 66 and then for storage in a memory.

CCOR:
358/448

CCXR:
348/112

CCXR:
358/403

CCXR:
358/406

CCXR:
358/455

CCXR:
358/461

CCXR:
358/487

☐ 17. Document ID: US 4868670 A

L6: Entry 17 of 29 File: USPT Sep 19, 1989

DOCUMENT-IDENTIFIER: US 4868670 A
TITLE: Apparatus and method for improving the compressibility of an enhanced image through use of a momentarily varying threshold level

DEPR:
A block diagram of one embodiment of a microfilm scanning and image enhancement system, which is constructed in accordance with the teachings of the present invention, for use in, for example, the KIMS system is depicted in FIG. 1. In essence, the inventive system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The inventive system advantageously forms part of an automated microfilm reader commonly known as a film library (previously known as an autoloader) which forms part of a KIMS instrument. Image enhancement, including noise removal and edge sharpening, is provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm. The output of circuit 40 is routed, via lead 49, to compressor 50 for video compression prior to being transmitted, via network interface 60 and lead 65, over a local area network that forms part of the KIMS system.

CCOR:
358/447

CCXR:
358/464

CCXR:
382/275

☐ 18. Document ID: US 4855943 A

L6: Entry 18 of 29 File: USPT Aug 8, 1989

DOCUMENT-IDENTIFIER: US 4855943 A
TITLE: Method and apparatus for deaveraging a stream of averaged data

DEPR:
A block diagram of one embodiment of a microfilm scanning and image enhancement system, which is constructed in accordance with the teachings of the present invention, for use in, for example, the KIMS system is depicted in FIG. 1. In essence, the inventive system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The inventive system advantageously forms part of an automated microfilm reader commonly known as a film library (previously known as an autoloader) which forms part of a KIMS instrument. Image enhancement, including noise removal and edge sharpening, is provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm. The output of circuit 40 is routed, via lead 49, to compressor 50 for video compression prior to being transmitted, via network interface 60 and lead 65, over a local area network that forms part of the KIMS system.

CCXR:
348/112

CCXR:
382/275

☐ 19. Document ID: US 4853795 A

L6: Entry 19 of 29 File: USPT Aug 1, 1989

DOCUMENT-IDENTIFIER: US 4853795 A
TITLE: Forward look ahead techniques for tracking background and noise levels in scanned video images

DEPR:
A block diagram of one embodiment of a microfilm scanning and image enhancement system, which is constructed in accordance with the teachings of the present invention, for use in, for example, the KIMS system is depicted in FIG. 1. In essence, the inventive system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The inventive system advantageously forms part of an automated microfilm reader commonly known as a film library (previously known as an autoloader) which forms part of a KIMS instrument. Image enhancement, including noise removal and edge sharpening, is provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm. The output of circuit 40 is routed, via lead 49, to compressor 50 for video compression prior to being transmitted, via network interface 60 and lead 65, over a local area network that forms part of the KIMS system.

CCOR:
358/447

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 20. Document ID: US 4833722 A

L6: Entry 20 of 29 File: USPT May 23, 1989

DOCUMENT-IDENTIFIER: US 4833722 A
TITLE: Apparatus and methods for locating edges and document boundaries in video scan lines

DEPR:
A block diagram of one embodiment of a microfilm scanning and image enhancement system, which is constructed in accordance with the teachings of the present invention, for use in, for example, the KIMS system is depicted in FIG. 1. In essence, the inventive system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The inventive system advantageously forms part of an automated microfilm reader commonly known as a film library (previously known as an autoloader) which forms part of a KIMS instrument. Image enhancement, including noise removal and edge sharpening, is provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm. The output of circuit 40 is routed, via lead 49, to compressor 50 for video compression prior to being transmitted, via network interface 60 and lead 65, over a local area network that forms part of the KIMS system.

CCOR:
382/199

CCXR:
358/464

CCXR:
382/201

☐ 21. Document ID: US 4774569 A

L6: Entry 21 of 29 File: USPT Sep 27, 1988

DOCUMENT-IDENTIFIER: US 4774569 A
TITLE: Method for adaptively masking off a video window in an overscanned image

DEPR:
A block diagram of one embodiment of a microfilm scanning and image enhancement system, which is constructed in accordance with the teachings of the present invention, for use in, for example, the KIMS system is depicted in FIG. 1. In essence, the inventive system enhances a scanned multi-bit gray scale microfilm image to substantially remove image noise therefrom and sharpen image edges therein, and then thresholds the enhanced image into single bit binary video for subsequent image compression. The inventive system advantageously forms part of an automated microfilm reader commonly known as a film library (previously known as an autoloader) which forms part of a KIMS instrument. Image enhancement, including noise removal and edge sharpening, is provided by Image Processing Circuit 40 which receives scanned pixel information from the scanned microfilm. The output of circuit 40 is routed, via lead 49, to compressor 50 for video compression prior to being transmitted, via network interface 60 and lead 65, over a local area network that forms part of the KIMS system.

CCOR:
348/107

CCXR:
358/453

CCXR:
382/174

CCXR:
382/282

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 22. Document ID: US 4742552 A

L6: Entry 22 of 29 File: USPT May 3, 1988

DOCUMENT-IDENTIFIER: US 4742552 A
TITLE: Vector image processing system

BSPR:
Other prior patent disclosures of interest include U.S. Pat. Nos.: 4,224,600--Sellner (a fully parallel microprocessor based BAP suitable for use with binary images and said to be an improvement based on the aforesaid Golay U.S. Pat. Nos. 4,060,713); 4,229,797--Ledley (a high speed video processor employing a video crossbar switch, D/A converters, x/y delay buffers, etc.); 4,309,691-Castleman (a processing system employing multiple cascaded or pipelined general purpose microcomputers); 4,334,241--Kashioka et al (a special purpose pattern matching circuitry); 4,334,274--Augi et al (a special purpose digital circuit employed to determine whether an object or Blob in a digital image lies within a closed boundary); 4,325,085--Gooch (a digital circuit for compressing facsimile data for storage or transmission); 4,143,401--Coviello and 4,258,394--Kennedy (digital circuits for use in edge detection of gray scale images); 4,330,833--Pratt et al (a digital filtering technique for enhancement of digital images); 3,809,902--Cofer et al (a facsimile recorder used to produce a picture of electrolytic cells); 4,302,775--Widergren et al (a digital video compression system); 4,238,768--Mitsuya et al (a special purpose digital circuit for digitally encoding image data for storage or transmission through a data channel); 4,297,727--Ogawa et al (facsimile apparatus employing a microcomputer as a central controller); 4,184,206--Harano (an apparatus for assigning the most accurate value to a PIXEL as the input image is digitized); and, 4,254,467--Davis et al (a vector to raster processor for converting graphics data to a form suitable for plotting or display). Attention is also directed to an article entitled Architecture For A Digital Programmable Image Processing Element, Stanley A. White, CONFERENCE: ICASSP 81, PROCEEDINGS OF THE 1981 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, pp. 658-661 (30 Mar.-1 Apr., 1981).

CCOR:
382/303

CCXR:
382/308

☐ 23. Document ID: US 4599656 A

L6: Entry 23 of 29 File: USPT Jul 8, 1986

DOCUMENT-IDENTIFIER: US 4599656 A
TITLE: Processing of gray scale image pels to facilitate data compression

CLPR:
1. For use in an image processing system of the type wherein capture gray scale pel values are to be thresholded to binary values to facilitate subsequent data compression, a method for identifying a pel which may require filtering to reduce distortion due to sampling along image vertical edges, said method comprising the steps of:

CLPR:
5. For use in an image processing system of the type wherein capture gray scale pel values are to be thresholded to binary values to facilitate subsequent data compression, a method for processing selected pels which may require filtering to reduce distortion due to sampling along image vertical edges, said method comprising the steps of:

CCOR:
358/261.3

CCXR:
358/447

CCXR:
358/448

CCXR:
358/479

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 24. Document ID: US 4558370 A

L6: Entry 24 of 29 File: USPT Dec 10, 1985

DOCUMENT-IDENTIFIER: US 4558370 A
TITLE: Image processing method for graphics images

ABPL:
Graphics images are generally considered to be those images comprised of text and/or line drawings. Data compression of graphics images is desired whenever a fast image transmission speed is desired in a limited band width channel. It is also used for storage of a large number of images in a limited capacity storage system. The method and apparatus described herein improves data compression, resolution and coding efficiency by eliminating transitions between gray levels at edges in an image, converting all gray levels to a common value to achieve a 3 level representation of a graphics image, and reversibly converting the 3 level representation to a bilevel double resolution representation by increasing the data sampling rate and therefore allowing the use of two level data compression techniques. A high resolution display or printed output may be obtained from the bilevel multiresolution representation.

BSPR:
U.S. Pat. No. 4,546,385 (Ser. No. 509,837) describes data compression apparatus and method for separating a graphics image into at least first and second bit planes, identifying edge pixels from the first bit plane indicating a black/white change, locating the edge pixels and generating a single bit for each edge pixel indicating whether the edge pixel has a maximum intensity value such as black or white or an intermediate gray intensity value. Although the patent identifies edge pixels in an image, the patent does not show any method for modifying edge pixel values to improve compression.

CCOR:
358/429

CCXR:
358/262.1

CCXR:
382/237

☐ 25. Document ID: US 4546385 A

L6: Entry 25 of 29 File: USPT Oct 8, 1985

DOCUMENT-IDENTIFIER: US 4546385 A
TITLE: Data compression method for graphics images

ABPL:
Graphic images are generally considered to be those images comprised of text and/or drawings. Data compression of graphics images is desired whenever a fast image transmission speed is desired in a limited band width channel. It is also used for storage of a large number of images in a limited capacity storage system. A high compression ratio is achieved by thresholding the graphics image to a bilevel black-white image at one bit per pixel and then employing a second data compression on the black-white image. At low resolution, bilevel images have poor quality at edges and a quality improvement is needed. The data compression apparatus and method disclosed separates the graphics image into at least first and second bit planes identifies edge pixels from the first bit plane indicating a black/white change, locates the edge pixels and generates at least a single bit for each edge pixel indicating whether the edge pixel has a maximum intensity value such as black or white or an intermediate gray intensity value. Intermediate values are not allowed except at edge pixels which enhances both quality and compressibility of the resulting graphics image.

BSPR:
Therefore, it is a primary object of the present invention to compress data in a graphics image encoded into a form having at least first and second bit planes, using the correlation among the bit planes, by a method including the following steps: identifying edge pixels from an encoding or decoding of the first bit plane of the image; locating the edge pixels and generating at least a single bit for each of the edge pixels; and indicating whether each edge pixel has a black/white intensity value or a gray intensity value by the binary state of the single bit based upon a comparison of the corresponding bits in the first and second bit planes. The coding of the compressed second bit plane using the single bits assumes that no intermediate (gray) levels exist except at edge pixels. If the graphics image contains more than two bit planes, then the method of the present invention can be generalized by increasing the number of bits generated for each edge pixel.

BSPR:
Accordingly, the data compression apparatus and method disclosed separates the graphics image into at least first and second bit planes, identifies edge pixels from the first bit plane indicating a black/white change, locates the edge pixels and generates a single bit for each edge pixel, which bit in the compressed second bit plane indicates whether the edge pixel has a maximum intensity value such as black or white or an intermediate gray intensity value.

DEPR:
The output XOR2 is connected along with the output of OR 28 to an input of And 36. The output of XOR2 will be gated out on line 34 to storage 30 only when it is a 1 and enable transfer line 40 is raised indicating an edge bit. Thus, when an edge bit is indicated by an output on line 40, whether it is an extreme or a gray value will be indicated by a 1 or a 0 output, respectively, on line 34. Accordingly, lines 34 and 40 combine to provide a second bit plane input to image buffer storage 30 from which this compressed edge bit and value data may be output for insertion in the first bit plane data stream. Hence, as bits will only be produced in the compressed second bit plane for edge pixels, the setting of these bits to 1 or 0 can be used to differentiate between extreme and gray color edge pixels.

CCOR:
348/390.1

CCXR:
358/426

☐ 26. Document ID: US 4433380 A

L6: Entry 26 of 29 File: USPT Feb 21, 1984

DOCUMENT-IDENTIFIER: US 4433380 A
TITLE: Tomographic scanner

BSPR:
.DELTA..mu. displays, which display the difference between the local value of an attenuation coefficient and the average value of attenuation coefficients in surrounding areas as signed, gray-scale levels (for example with neutral gray representing zero; black representing negative values; and white representing positive values) tend to accentuate boundary regions, and thus do not suffer from the gray scale compression problems of prior art displays of the attenuation coefficient. Area boundaries may thus be readily visualized in a .DELTA..mu. gray-scale display which might otherwise be invisible in a conventional gray-scale display of attenuation coefficients.

CCOR:
382/131

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 27. Document ID: US 4353092 A

L6: Entry 27 of 29 File: USPT Oct 5, 1982

DOCUMENT-IDENTIFIER: US 4353092 A
TITLE: Real time histogram modification system

DEPR:
A reason to implement such an operator lies in the fact that very often images, especially those from IR and X-ray systems, have histograms that are strongly peaked, i.e., a large number of the total pixels are concentrated into a narrow range of grey levels. Under these circumstances, many of the contrast ratios that define edges are simply not displayable, even though they are present in the original signal. The histogram equalization operator expands grey level ranges where pixels are prevalent while compressing them where pixels are sparse, thereby improving the visibility of the edge detail within regions where the original histogram was peaked. It is, of course, also possible that small details which are represented by only a few pixels may be completely lost after histogram equalisation, their having been compressed into the same display grey level as their surroundings. However, the general effect is to improve the visibility of fine detail within the enhanced image.

CCOR:
348/672

CCXR:
348/678

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 28. Document ID: US 4150400 A

L6: Entry 28 of 29 File: USPT Apr 17, 1979

DOCUMENT-IDENTIFIER: US 4150400 A
TITLE: Methods of a coarse-scan/fine-print character reproduction with compression

ABPL:
A coarse scanning device produces analog signals that are encoded and compressed to distinguish between and represent the white background and potentially the all black elements of the character by run length codes and at least the edge of the black character by grey level values. The grey level information is decoded to activate a fine print device where the numer of print dots in a matrix is equal to the grey level values. The placement of the print dots are biased according to pattern matrices designed to bias the dots toward the character. The pattern matrices are acquired by determining the sums of the grey level values of various groups of picture elements peripheral to the picture element being decoded.

BSPR:
In accordance with the present invention, a data compression scheme for use with a coarse scanning device to accomplish a fine character reproduction encompasses a run length code representing the background information or runs of all white or all black data with the character or at least the edge information represented as grey levels. Control bits are used to distinguish between the run length information and the grey value information. The remaining bits of each byte represent the length of the run length code and the grey levels of the picture elements comprising the character. This coding of the graphic data permits decompaction of the data information into a higher resolution reproduction device expanded by the grey level infortion.

BSPR:
The total process for picture reproduction according to the present invention includes the steps of coarse scanning a picture element, identifying the coarsely scanned picture element according to a level from white to grey to black, compressing and encoding common level picture elements, obtaining and encoding grey level values for picture elements identifying at least the black to white edge of the picture, storing the encoded data if necessary for transmission to a reproducing device, transmitting the data, receiving the data, storing the received data, decoding the stored data, decompressing the compressed data, decoding the grey level data, setting the number of reproducing dots according to the grey level data, and reproducing the picture according to the decompressed data and the reproduction dots set.

CLPR:
11. A process as defined in claim 6 wherein the process of compressing common level picture elements run length encodes the white or background picture elements and the all black or all character picture elements and the step of encoding the numerical level of at least the grey scaled picture elements encodes the edge of the background/character.

CLPR:
14. A process as defined in claim 12 wherein the process of compressing common level picture elements run length encodes the white or background picture elements and the all black or all character picture elements and the step of encoding the numerical level of at least the grey scaled picture elements encodes the edge of the background/character.

CCOR:
358/261.3

CCXR:
358/261.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 29. Document ID: US 4124870 A

L6: Entry 29 of 29 File: USPT Nov 7, 1978

DOCUMENT-IDENTIFIER: US 4124870 A
TITLE: Method for improving print quality of coarse-scan/fine-print character reproduction

ABPL:
A directional biasing method enhances the print quality of coarsely scanned characters. A coarse scanning device produces analog signals that are compressed by encoding common information in a run length coding and encoding at least an edge of the character information according to a grey level indication. The data information is reproduced wherein the grey scale information is decoded to represent a finer print than the picture element scanned. The biasing and placement of the dots is set according to the grey scale of the surrounding picture elements. Eight sums are obtained of various groups of three peripheral picture elements corresponding to eight patterns located symmetrically on both sides of 4 bisecting lines, vertical, horizontal and two 45.degree. lines. A particular matrix of print dot placement is selected according to the largest pattern sum among the eight possible cases. The dots in each matrix are designed to being strongly biased toward the direction of the associated pattern.

CCOR:
358/429

CCXR:
358/433

Generate Collection

Term	Documents
348/$	0
348/100.USPT.	62
348/101.USPT.	35
348/102.USPT.	19
348/103.USPT.	67
348/104.USPT.	66
348/105.USPT.	64
348/106.USPT.	36
348/107.USPT.	50
348/108.USPT.	35
((((348/$ OR 358/$ OR 382/$).CCLS.)) AND ((COMPACT$3 OR COMPRESS$3) WITH GR?Y WITH (EDG$3 OR BORDER$3 OR BOUNDAR$3))).USPT.	29

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Display 50 Documents, starting with Document: 29

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WEST

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Search Results - Record(s) 1 through 37 of 37 returned.

☐ 1. Document ID: US 6208749 B1

L3: Entry 1 of 37 File: USPT Mar 27, 2001

DOCUMENT-IDENTIFIER: US 6208749 B1
TITLE: Systems and methods for the multispectral imaging and characterization of skin tissue

DEPR:
Next, monochromatic "raw data" images of the skin, I.sub.si, are captured by the camera and digitally acquired by the computer 12 within each filter passband, i=1,2, . . . M. If dermoscopic imaging is used, where a thin layer of mineral oil is spread between the skin and a cover glass is fixed in position in front of the camera, each image of the skin preferably contains an image of a narrow strip of oil-free, diffusely reflecting gray material, held in place on the inside surface of the cover glass, and located along one edge of the field of view. The material may be cut out of a Kodak "18% gray" card. Dermoscopic imaging is preferred for melanocytic lesions. The alternative clinical imaging mode is preferred for the imaging of wounds and burns because contact with the wound or burn by a cover glass is not desired. Although FIG. 2 indicates a lesion present on the skin 2, it will be readily understood that the same method will apply when a wound or burn is present, instead. In the clinical imaging mode, it is preferable to reduce specular reflections by employing the polarizer 31, as indicated in FIG. 2.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 6128578 A

L3: Entry 2 of 37 File: USPT Oct 3, 2000

DOCUMENT-IDENTIFIER: US 6128578 A
TITLE: Meteorological radar precipitation pattern prediction method and apparatus

DEPR:
In the figure, image input section 100 and image storage section 110 are the same as those included in the apparatus of embodiment 1 or 2. The apparatus of the present embodiment further comprises image processing section 320 for calculating image-feature quantities such as the amount of change of precipitation, distribution of edge-gradients, and the like, between two or more two-dimensional images; advection-diffusion equation calculating section 330 for calculating, with the above various image-feature quantities as initial values, spatial-temporal variations of the precipitation based on initial information about shape and gray-levels of the relevant precipitation region, by using an advection-diffusion equation which includes the above six terms; prediction section 340 for predicting a transition of the precipitation region according to a calculated result; and output section 350 for outputting predicted results

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 6122070 A

L3: Entry 3 of 37 File: USPT Sep 19, 2000

DOCUMENT-IDENTIFIER: US 6122070 A
TITLE: Non-casual error diffusion method and apparatus

DEPR:
As can be seen from the above experiments, in a non-causal error diffusion method and apparatus according to the present invention, since the transformation errors for each pixel at the non-causal locations are reflected in transforming great gray level sets of digital image into reduced gray level sets of digital image, the boundary lines are conspicuously emphasized and artifacts is dramatically reduced.

DEPR:
As described above, in a non-causal error diffusion method and apparatus according to the present invention, both the transformation errors for the causal pixels and the transformation errors for the non-causal pixels are reflected to the binarization of gray level pixel image data, so that the boundary portions in the binarized image can be conspicuously emphasized and artifacts can be dramatically reduced. As a result, the non-causal error diffusion method and apparatus according to the present invention is capable of preventing the deterioration of picture quality when the gray level image is changed into the binary level image.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 4. Document ID: US 6081612 A

L3: Entry 4 of 37 File: USPT Jun 27, 2000

DOCUMENT-IDENTIFIER: US 6081612 A
TITLE: Systems and methods for the multispectral imaging and characterization of skin tissue

DEPR:
Next, monochromatic "raw data" images of the skin, I.sub.si, are captured by the camera and digitally acquired by the computer 12 within each filter passband, i=1,2, . . M. If dermoscopic imaging is used, where a thin layer of mineral oil is spread between the skin and a cover glass is fixed in position in front of the camera, each image of the skin preferably contains an image of a narrow strip of oil-free, diffusely reflecting gray material, held in place on the inside surface of the cover glass, and located along one edge of the field of view. The material may be cut out of a Kodak "18% gray" card. Dermoscopic imaging is preferred for melanocytic lesions. The alternative clinical imaging mode is preferred for the imaging of wounds and burns because contact with the would or burn by a cover glass is not desired. Although FIG. 2 indicates a lesion present on the skin 2, it will be readily understood that the same method will apply when a wound or burn is present, instead. In the clinical imaging mode, it is preferable to reduce specular reflections by employing the polarizer 31, as indicated in FIG. 2.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 5. Document ID: US 6075902 A

L3: Entry 5 of 37 File: USPT Jun 13, 2000

DOCUMENT-IDENTIFIER: US 6075902 A
TITLE: Area recognizing device for image signals

DEPR:
When a halftone image which is generated according to the error-diffusion method in FIG. 21 is employed as an input image to an estimating circuit 93, estimation can be restored with desired resolution and gradation without any deterioration of edges or any false gray-scale contour. Although the error diffusion method is employed herein, other methods of storing average data value of an image can be employed. More specifically, a well-known N-level converting means (K>N) can be employed. For example, an average error minimizing method, a dither method, and a multi-value dither method may be employed instead.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 6. Document ID: US 6056416 A

L3: Entry 6 of 37 File: USPT May 2, 2000

DOCUMENT-IDENTIFIER: US 6056416 A
TITLE: Indirect luminaire having an upper reflector for improved brightness control

DEPR:
The tower's inwardly inclined, flat side walls 51a, 51b provide an essential component of the lensed reflector systems 35a, 35b. Specifically, each of the lensed reflector systems is comprised of two components, an elongated, extruded lens element 53 and a reflector substrate provided by the flat reflecting surface 55 on each of the tower side walls. Each reflecting surface 55 extends between the side wall's parallel top and bottom edges 57, 58 and should be a diffuse or semi-diffuse reflecting surface, for example, a matte grey surface.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 7. Document ID: US 6026199 A

L3: Entry 7 of 37 File: USPT Feb 15, 2000

DOCUMENT-IDENTIFIER: US 6026199 A
TITLE: Method and apparatus for halftoning grey value signals

BSPR:
The method according to the invention, on the other hand, has as its object to provide a simple method of halftoning based on error diffusion of grey values of pixels obtained by a photoelectric scanning of an image, with edge transitions being reproduced as sharply as possible.

BSPR:
In the method according to the invention, use is now conveniently made of this added noise. The difference between two grey value signals each having a noise component will have a virtually random variation in size, at least in the absence of edge transitions. If the selection of a pixel from one or more pixels is determined by the magnitude of this difference, such selection will also have a virtually random character. By further determining a difference in two directions, the selection obtained at edge transitions is not a random selection but is controlled by the direction of the edge transition and is therefore no longer random. This provides a very simple embodiment of error diffusion, in which random selection of the diffusion of the quantisation error is obtained in surfaces of constant grey values and a controlled non-random diffusion is obtained over a small area at edge transitions.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 8. Document ID: US 5972710 A

L3: Entry 8 of 37 File: USPT Oct 26, 1999

DOCUMENT-IDENTIFIER: US 5972710 A
TITLE: Microfabricated diffusion-based chemical sensor

DEPR:
FIG. 2 shows a fluorescence microscope photograph of the T-sensor of FIG. 1 featuring an indicator inlet stream 45 which is a weakly buffered indicator dye solution of pH 5, and a sample inlet stream 55 which is a buffer solution of pH 9. The bright zone at the right is light reflecting on the silicon and does not relate to the sample and indicator streams. The sample stream 80 appears as a dark clear fluid on the right. The bright zone on the left is reference area 85 where analyte particles have not yet diffused into indicator stream 70. The grey area in the middle is analyte detection area 90 where OH.sup.- ions from the sample stream 80 have diffused into indicator stream 70 to form detection area 90. The fuzzy right edge of the grey detection area 90 is caused by dye particles diffusing into the sample stream 80. Uniform analyte particle diffusion area is shown at 120 where the OH.sup.- ions are uniformly diffused. The strongest signal is in the middle of detection area 90.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 9. Document ID: US 5930396 A

L3: Entry 9 of 37 File: USPT Jul 27, 1999

DOCUMENT-IDENTIFIER: US 5930396 A
TITLE: Method and apparatus for generating halftone output

BSPR:
For some output devices, an advantage of threshold-array-equivalent halftoning is that it permits independent halftoning of different images which are adjacent to each other in an output frame. No seams are created at the boundaries between the objects because the pixel value at each pixel position depends only upon the image reference gray level at that spot and not upon diffusion values from adjoining pixels. Similarly, it may be advantageous in an output device to use the same set of thresholds for halftoning other content elements next to images such as strokes or fills.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 10. Document ID: US 5930007 A

L3: Entry 10 of 37 File: USPT Jul 27, 1999

DOCUMENT-IDENTIFIER: US 5930007 A
TITLE: Area recognizing device for image signals

DEPR:
When a halftone image which is generated according to the error-diffusion method in FIG. 21 is employed as an input image to an estimating circuit 93, estimation can be restored with desired resolution and gradation without any deterioration of edges or any false gray-scale contour. Although the error diffusion method is employed herein, other methods of storing average data value of an image can be employed. More specifically, a well-known N-level converting means (K>N) can be employed. For example, an average error minimizing method, a dither method, and a multi-value dither method may be employed instead.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 11. Document ID: US 5917955 A

L3: Entry 11 of 37 File: USPT Jun 29, 1999

DOCUMENT-IDENTIFIER: US 5917955 A
TITLE: Area recognizing device and gradation level converting device employing area recognizing device

DEPR:
When a halftone image which is generated according to the error-diffusion method in FIG. 21 is employed as an input image to an estimating circuit 93, estimation can be restored with desired resolution and gradation without any deterioration of edges or any false gray-scale contour. Although the error diffusion method is employed herein, other methods of storing average data value of an image can be employed. More specifically, a well-known N-level converting means (K>N) can be employed. For example, an average error minimizing method, a dither method, and a multi-value dither method may be employed instead.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 12. Document ID: US 5886759 A

L3: Entry 12 of 37 File: USPT Mar 23, 1999

DOCUMENT-IDENTIFIER: US 5886759 A
TITLE: Liquid crystal display device having a side edge type back light system with a hue layer in the vicinity of the light source

DEPR:
Reference numeral 62 denotes a liquid crystal display; 37 denotes a light guide positioned under the liquid crystal display 62; 65 denotes a light-receiving edge face as one side of the light guide 37; 36 denotes a fluorescent tube placed close to and along the light-receiving edge face 65; 66 denotes a lamp reflector sheet covering substantially the whole length of the fluorescent tube 36, the lamp reflector sheet being substantially U-shaped in cross section and having an inner face which is colored white or silver; 39 denotes a diffusion sheet located on the light guide 37 under the liquid crystal display 62; 38 denotes a reflective sheet located under the light guide 37; 67 denotes a pattern of a plurality of light diffusion dots printed with white ink on the underside of the light guide 37 for transmitting, from the top surface of the light guide 37, light introduced into the light guide 37 and subjected to total reflection; 68 and 69 denote lens sheets (lens films) placed between the diffusion sheet 39 and the liquid crystal display 62; 1 denotes a section printed with gray-colored dots on the surface of the reflective sheet 38 adjacent the light-receiving edge face 65 of the light guide 37; 70 denotes the end portion of the lamp reflector sheet 66; 71 denotes an adhesive layer for bonding the end portion 70 of the lamp reflector sheet 66 onto the surface of the light guide 37; 72 denotes the edge face opposite the light-receiving edge face 65; 73 denotes a reflective tape provided on the side 72; and 74 denotes an adhesive layer for bonding the reflective tape 73 to the edge face 72.

DEPR:
According to the arrangement of FIG. 4, the section 1 printed with gray-colored dots, for example, is provided on the undersurface of the diffusion sheet 39 adjacent the light-receiving edge face 65. Although the section 1 colored dots for preventing light leakage is provided on the undersurface of the lamp reflector sheet 66 above the light guide 37 according to the second embodiment of FIG. 2, the hue layer is provided on the undersurface of the diffusion sheet 39 according to the fourth embodiment. Therefore, light leakage can be prevented as in any one of the aforementioned embodiments of the present invention. Incidentally, the end portion 70 of the lamp reflector sheet 66 is adhesion-bonded via the adhesive layer 71 to the surface of the diffusion sheet 39. The rest of the construction is similar to that of the second embodiment of FIG. 2.

DEPR:
According to the fifth embodiment, a gray-colored tape 2, for example, serving as a hue layer, is pasted via the adhesive layer 75 on the undersurface of the diffusion sheet 39 on the end thereof adjacent the light-receiving edge face 65 of the wedge-shaped light guide 37. Therefore, light leakage can be prevented as in any one of the aforementioned embodiments of the present invention. Incidentally, the end portion 70 of the lamp reflector sheet 66 is adhesion-bonded onto the surface of the diffusion sheet 39 via a double-sided tape 79 including an adhesive layer 78, a base layer 76 and an adhesive layer 77. The rest of the construction is similar to that of the third embodiment of FIG. 3.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 13. Document ID: US 5835237 A

L3: Entry 13 of 37 File: USPT Nov 10, 1998

DOCUMENT-IDENTIFIER: US 5835237 A
TITLE: Video signal coding method and apparatus thereof, and video signal decoding apparatus

DEPR:
Further, FIG. 23 shows the result of reconstruction of the image from singular points obtained by the singular point detection apparatus for a gray scale image: each of them show the original image (FIG. 23(A)), singular points obtained by new edge detection apparatus (FIG. 23(B)), and reconstructed data from the singular points and their respective amplitudes on the original image after repeating a diffusion process for thirty times (FIG. 23(C)).

DEPR:
Further, FIG. 24 shows the result of reconstruction of the image from singular points obtained by the Canny edge detection apparatus for a gray scale image: each of them show the original image.(FIG. 24(A)), singular points obtained by the Canny edge detection apparatus (FIG. 24(B)), and reconstructed data from the singular points and their respective amplitudes on the original image after repeating a diffusion process for thirty times (FIG. 24(C)).

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 14. Document ID: US 5818573 A

L3: Entry 14 of 37 File: USPT Oct 6, 1998

DOCUMENT-IDENTIFIER: US 5818573 A
TITLE: Opthalmic lens inspection system

BSPR:
Some automated systems have been developed for automatically inspecting contact lenses. One such system is disclosed in U.S. Pat. No. 5,500,732 issued to Ebel et al on Mar. 19, 1996. In this system, a multitude of ophthalmic lenses are continuously moved along a path through a lens inspection station by a walking beam mechanism. At the lens inspection station, the lenses are moved at a constant velocity under cameras, each camera inspecting a different lens, and the lenses are imaged. In the inspection station, the lenses are illuminated by strobe light through a ground glass diffuser, an air spaced doublet collector lens, and a field lens. The doublet lens is to collimate the light from the ground glass diffuser and focus a portion of the light beam onto a focal point forward of a imaging pixel array, and the field lens is to focus a portion of the diffuse light onto the pixel array and for correcting divergence of the light beam caused by the lens package (holder, water and lens) under inspection, according to the Ebel et al. patent. This illumination subsystem purportedly provides a diffuse background pattern on the image plane giving the peripheral zones of the lenses a different grey level than the back optic zone to enhance the image of the boundary between the peripheral bevelled zone and the central optical zone of the contact lenses. The images of each of the lenses are then processed to locate the lens in the image and to detect various defects such as torn lenses and cosmetic flaws known as puddles formed by slight depressions in the surface of the lens.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 15. Document ID: US 5801822 A

L3: Entry 15 of 37 File: USPT Sep 1, 1998

DOCUMENT-IDENTIFIER: US 5801822 A
TITLE: Ophthalmic lens inspection system

BSPR:
Some automated systems have been developed for automatically inspecting contact lenses. One such system is disclosed in U.S. Pat. No. 5,500,732 issued to Ebel et al on Mar. 19, 1996. In this system, a multitude of ophthalmic lenses are continuously moved along a path through a lens inspection station by a walking beam mechanism. At the lens inspection station, the lenses are moved at a constant velocity under cameras, each camera inspecting a different lens, and the lenses are imaged. In the inspection station, the lenses are illuminated by strobe light through a ground glass diffuser, an air spaced doublet collector lens, and a field lens. The doublet lens is to collimate the light from the ground glass diffuser and focus a portion of the light beam onto a focal point forward of a imaging pixel array, and the field lens is to focus a portion of the diffuse light onto the pixel array and for correcting divergence of the light beam caused by the lens package (holder, water and lens) under inspection, according to the Ebel et al. patent. This illumination subsystem purportedly provides a diffuse background pattern on the image plane giving the peripheral zones of the lenses a different grey level than the back optic zone to enhance the image of the boundary between the peripheral bevelled zone and the central optical zone of the contact lenses. The images of each of the lenses are then processed to locate the lens in the image and to detect various defects such as torn lenses and cosmetic flaws known as puddles formed by slight depressions in the surface of the lens.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 16. Document ID: US 5768432 A

L3: Entry 16 of 37 File: USPT Jun 16, 1998

DOCUMENT-IDENTIFIER: US 5768432 A
TITLE: System and apparatus for pixel growth compensation in a hybrid error diffusion process

BSPR:
One aspect of the present invention is a method of reducing a number of levels in a multi-level grey scale pixel value representing a pixel and diffusing an error generated from reducing the number of levels. The method receives the multilevel grey scale pixel value of a first resolution; generates a screened multi-level grey scale pixel value; reduces the number of levels in the screened multi-level grey scale pixel value; generates an error value as a result of the reduction process; modifies the generated error value based on a pixel growth compensation value dependent on a detection of a black/white edge between adjacent pixels; and diffuses the error value to multi-level grey scale pixel values of adjacent pixels.

BSPR:
A second aspect of the present invention is a system for reducing a number of levels in a multi-level grey scale pixel value representing a pixel and diffusing an error generated from reducing the number of levels. The system includes input means for receiving the multi-level grey scale pixel value, the multilevel grey scale pixel value having a first resolution; screening means for generating a screened multi-level grey scale pixel value; high addressability means for converting the screened multi-level grey scale pixel value to a second resolution, the second resolution being higher than the first resolution;

reduction means for reducing the number of levels in the screened multi-level grey scale pixel value; pixel growth compensation means for generating a pixel growth compensation value based on a detection of a black/white edge between adjacent pixels; error means for generating a plurality of possible error values; selecting means for selecting an error value from the plurality of possible error values as a result of the reduction by said reduction means; summing means for adding the pixel growth compensation value to the selected error value; and error diffusing means for diffusing the selected modified error value to multi-level grey scale pixel values of adjacent pixels.

BSPR:
A fourth aspect of the present invention is a printing system for rendering marks on a recording medium. The printing system includes receiving means for receiving a multi-level grey scale pixel value representing a pixel having a first resolution; screening means for generating a screened the multi-level grey scale pixel value; interpolation means for converting the screened multi-level grey scale pixel value to a second resolution, the second resolution being higher than the first resolution; binarization means for binarizing the converted multi-level grey scale pixel value so as to output a binary signal and an error value, the error value having a resolution equal to the first resolution; pixel growth compensation means for generating a pixel growth compensation value based on a detection of a black/white edge between adjacent pixels; modifying means for modifying the error value based on the generated pixel growth compensation value; diffusing means for diffusing the modified error value to multi-level grey scale pixel values corresponding to pixels adjacent to the pixel having the first resolution; and rendering means for converting the binary signal into a mark on the recording medium.

BSPR:
A sixth aspect of the present invention is a system for reducing a number of levels in a multi-level grey scale pixel value representing a pixel and diffusing an error generated from reducing the number of levels. The system includes input means for receiving the multi-level grey scale pixel value, the multi-level grey scale pixel value having a first resolution; screening means for generating a screened multi-level grey scale pixel value; reduction means for reducing the number of levels in the screened multi-level grey scale pixel value; pixel growth compensation means for generating a pixel growth compensation value based on a detection of a black/white edge between adjacent pixels; error means for generating an error value based on the reduction by said reduction means; means for adding the error value and the pixel growth compensation value to produce a modified error value; and error diffusing means for diffusing the modified error value to multi-level grey scale pixel values of adjacent pixels.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 17. Document ID: US 5760922 A

L3: Entry 17 of 37 File: USPT Jun 2, 1998

DOCUMENT-IDENTIFIER: US 5760922 A
TITLE: Area recognizing device and gradation level converting device employing area recognizing device

DEPR:
When a halftone image which is generated according to the error-diffusion method in FIG. 21 is employed as an input image to an estimating circuit 93, estimation can be restored with desired resolution and gradation without any deterioration of edges or any false gray-scale contour. Although the error diffusion method is employed herein, other methods of storing average data value of an image can be employed. More specifically, a well-known N-level converting means (K>N) can be employed. For example, an average error minimizing method, a dither method, and a multi-value dither method may be employed instead.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 18. Document ID: US 5710836 A

L3: Entry 18 of 37 File: USPT Jan 20, 1998

DOCUMENT-IDENTIFIER: US 5710836 A
TITLE: System and apparatus for tonal reproduction adjustment in an error diffusion process

BSPR:
If a grey wedge is scanned in by a digital copier and the grey edge image is reproduced at 300 spots per inch utilizing the compensating error diffusion process of U.S. Pat. No. 5,087,981, the reproduced grey wedge demonstrates a gradual increase in density when compared to the original grey wedge. However, the utilization of this compensating error diffusion process appears to produce clumps and streaks of dark pixels in the midtone to shadow areas of the reproduced grey edge. Therefore, it is desirable to provide a compensated error diffusion method wherein the density of a reproduced grey wedge gradually increases without the artifacts of clumps and streaks of dark pixels in the midtone to shadow areas.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 19. Document ID: US 5710833 A

L3: Entry 19 of 37 File: USPT Jan 20, 1998

DOCUMENT-IDENTIFIER: US 5710833 A
TITLE: Detection, recognition and coding of complex objects using probabilistic eigenspace analysis

DEPR:
The invention was applied to this environment at the detection (attentional and representational) stage, i.e., to find a hand (in any of its articulated States) in a cluttered scene, to account for its scale and to align it with respect to a reference frame prior to recognition. This localization was achieved with the System described above, with the exception that the underlying image representation of the hands was the diffused edge map instead of a gray-scale image.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 20. Document ID: US 5553171 A

L3: Entry 20 of 37 File: USPT Sep 3, 1996

DOCUMENT-IDENTIFIER: US 5553171 A
TITLE: Apparatus and method for arbitrary binary resolution conversion

DEPR:
Another method is error diffusion. Error diffusion does not depend upon image segmentation because this method can be applied without knowing the image type. Error diffusion observes the local average gray level which is beneficial for fine line reproduction and tone scale preservation. If the original image is of high contrast, such that in the gray image of resolution R2, gray pixels occur only at the edges of black lines or dots, error diffusion is likely to generate dots attached to black pixels which substantially eliminates the dispersed dots and worm shaped artifacts. In contrast, if error diffusion is applied to a general scanned image, the error diffusion method tends to generate isolated dots which are difficult to print and cause worm shaped artifacts to appear in uniform gray areas.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 21. Document ID: US 5512943 A

L3: Entry 21 of 37 File: USPT Apr 30, 1996

DOCUMENT-IDENTIFIER: US 5512943 A
TITLE: Video monitor contrast reference gray scale apparatus and method of use thereof

DEPR:
FIG. 11 further illustrates the cover plate 109 and the rectangular openings or fields A3, B3, C3 and D3 of the reference gray scale 108 of the apparatus 205 which are formed in the cover plate 109. FIG. 11 also illustrates the ground edge 110 of the emitter 104B. In the preferred embodiment, the reference gray scale filters 121, 122, 123 and 124 are neutral density filters and are located behind the rectangular openings or fields A3, B3, C3 and D3 of the reference gray scale 108. In the arrangement of FIGS. 10 and 11, the light, which is supplied by the light sources 102 is internally reflected, as shown in FIGS. 8, 9 and 11, within the device 100 and in the emitter 104B, is diffused on the ground edge 110 and is reflected by the mirror 114, through the reference gray scale filters 121, 122, 123 and 124 and fields A3, B3, C3 and D3 and either to a camera lens or to a viewer's eye, whichever the case may be, as shown.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 22. Document ID: US 5379130 A

L3: Entry 22 of 37 File: USPT Jan 3, 1995

DOCUMENT-IDENTIFIER: US 5379130 A
TITLE: Text/image separation method

BSPR:
These methods are generally very complicated in calculation and thus some of them are good only for the recognition of printed text. Further, an optical character recognition system has to be incorporated to perform the separation. U.S. Pat. No. 4,958,238 discloses a method which can be used in facsimile machines. However, since the '238 patent adopts the error diffusion method and uses modified diffusion factors in processing text edges, the processing result thereof has a clear text performance while sacrificing the gray scale of image. This of course is not acceptable for a high quality printing of documents.

DEPR:
It is concluded that (1) this method is simple and efficient in calculation and is easily to be integrated in a laser beam printing device without any additional cost and a great improvement in the printing quality can be obtained, (2) no optical character recognition system is needed in the present system by using the edge detecting technique so that an on-line real time processing can be obtained, (3) the present system can incorporate any kind of halftoning algorithm, such as the ordered dither method or the error diffusion method, to enhance the gray scale tone of an image, and (4) the present invention provides an excellent enhancement effect for any kind of characters, such as Chinese, English, and lines and symbols.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 23. Document ID: US 5325211 A

L3: Entry 23 of 37 File: USPT Jun 28, 1994

DOCUMENT-IDENTIFIER: US 5325211 A
TITLE: Error diffusion with output and input based feedback

BSPR:
In accordance with the invention, there is provided a method for quantizing gray level pixels using a combination of error diffusion methods, in which the printability of the output on xerographic engines is increased, while edges within the image are enhanced.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 24. Document ID: US 5300347 A

L3: Entry 24 of 37 File: USPT Apr 5, 1994

DOCUMENT-IDENTIFIER: US 5300347 A
TITLE: Embossed facial tissue

DEPR:
The camera is now checked for blooming by raising the ChromoPro illumination until the mean field grey level is at a value of 250 (measured by the IBAS program shown above.) A piece of black construction paper with a clean, sharp edge is placed on the ChromoPro diffuser so that approximately 10 percent of the field of view is black. The edge between the bright and dark image regions is carefully studied on the IBAS monitor. The border is found to be sharp, indicating that the camera does not have a blooming problem. (If the camera did have a blooming problem, the border would blur.) The camera is finally mounted to the test apparatus as described above and testing proceeds.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 25. Document ID: US 5268774 A

L3: Entry 25 of 37 File: USPT Dec 7, 1993

DOCUMENT-IDENTIFIER: US 5268774 A
TITLE: Halftoning with enhanced dynamic range and edge enhanced error diffusion

BSPR:
This invention relates to quantizing gray data using halftoning with an enhanced dynamic range and edge enhanced error diffusion.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 26. Document ID: US 5226094 A

L3: Entry 26 of 37 File: USPT Jul 6, 1993

DOCUMENT-IDENTIFIER: US 5226094 A
TITLE: Method for making image conversions with error diffusion

BSPR:
In accordance with yet another aspect of the invention, any number of methods of error diffusion may be used to provide the necessary number of output levels after the scaling (or printing/rescanning) operation, including but not limited to the standard Floyd-Steinberg error diffusion method, in which error occurring in the thresholding step is distributed to adjacent pixels corresponding to a fixed weighting scheme; error diffusion with edge enhancement, as described in U.S. patent application Ser. No. 07/396,272, entitled, "Edge Enhanced Error Diffusion Algorithm" by R. Eschbach and assigned to the same assignee as the present invention, where the threshold level is varied based on image content; and an adaptive error diffusion technique, in which error occurring in the thresholding step is distributed to adjacent pixels based on whether the adjacent pixels are gray or already black or white, or distributed corresponding to a fixed weighting scheme if all the adjacent pixels are already black or white.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 27. Document ID: US 5223054 A

L3: Entry 27 of 37 File: USPT Jun 29, 1993

DOCUMENT-IDENTIFIER: US 5223054 A
TITLE: Method for producing hydrogen storage alloy resistant to micronization

DEPR:
As shown in FIG. 2 (photograph), in the Mg-conjugated hydrogen storage alloy, Mg (the dark portion) was infiltrated in TiMn.sub.1.5 (the white to gray portion) and a diffusion layer was formed in the boundary of Mg and TiMn.sub.1.5. That is, in the Mg-conjugated hydrogen storage alloy, Mg functions as binder. When the hydrogen storage alloy stores hydrogen and expands, Mg absorbs and suppresses stress generated by expansion and prevents production of crack during repetition of storage and release of hydrogen, thereby greatly improving the resistance to micronization. Control hydrogen storage alloy without Mg was prepared by simply pressing hydrogen storage alloy powder represented by formula TiMn:sub.1.5 and having particle Size of not larger than 50 .mu.m under a pressure of 7 ton/cm.sup.2. The control hydrogen storage alloy was micronized after repeating storage and release about 20 times. On the other hand, the Mg-conjugated hydrogen storage alloy of this embodiment was not micronized even after repeating storage and release about 600 times.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 28. Document ID: US 5208871 A

L3: Entry 28 of 37 File: USPT May 4, 1993

DOCUMENT-IDENTIFIER: US 5208871 A
TITLE: Pixel quantization with adaptive error diffusion

BSPR:
In accordance with yet another aspect of the invention, any number of methods of error diffusion may be used to provide the necessary number of output levels after the scaling (or printing/rescanning) operation, including but not limited to the standard Floyd-Steinberg error diffusion method, in which error occurring in the thresholding step is distributed to adjacent pixels corresponding to a fixed weighting scheme; error diffusion with edge enhancement, as described in U.S. patent application Ser. No. 07/396,272, entitled, "Edge Enhanced Error Diffusion Algorithm" by R. Eschbach and assigned to the same assignee as the present invention, where the threshold level is varied based on image content; and an adaptive error diffusion technique, in which error occurring in the thresholding step is distributed to adjacent pixels based on whether the adjacent pixels are gray or already black or white, or distributed corresponding to a fixed weighting scheme if all the adjacent pixels are already black or white.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 29. Document ID: US 4752448 A

L3: Entry 29 of 37 File: USPT Jun 21, 1988

DOCUMENT-IDENTIFIER: US 4752448 A
TITLE: Drug abuse test paper

DEPR:
Once dried, using a pipette or an eye dropper, four to five drops of wash water are added to the center of the test area 12. Excess reagent will be washed away and a gray, inner ring will always appear. If it is a negative specimen, the gray area will be very faint. However, if narcotic substances are present, a distint blue-gray color will form between the area wetted by the elution solvent and the outer ring 16. The embodiments of FIGS. 3 and 4 show a positive specimen. The test ring is negative if the area outside the inner gray ring is diffuse and pale gray in color and there is no well defined blue outer edge. See the embodiment of FIG. 2.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 30. Document ID: US 4610542 A

L3: Entry 30 of 37 File: USPT Sep 9, 1986

DOCUMENT-IDENTIFIER: US 4610542 A
TITLE: System for detecting selective refractive defects in transparent articles

CLPR:
1. In a method of inspecting transparent objects for defects wherein a generally planar diffuser acts as a source of diffuse light is positioned at the focal length F of a lens thereby producing, in front of the lens, collimated beams that originate from points on the source and the angular spectrum of illumination in front of the lens is limited to angles which are equal to or less than the angle between a line extending from the upper edge of the diffuser through the center of the lens and the central axis of the lens, and objects to be inspected are positioned normal to the lens axis in front of the lens, optically enhancing defects in the object, the improvement therein comprising back lighting the diffuser so as to produce a light intensity gradient on the diffuser which is vertical in direction, thereby providing grey scale illumination for discriminating types of these defects from gradual refractive variations, and viewing the objects with a linear array camera focused on the surface of the object to detect defects by variations in the level of light received by the camera.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 31. Document ID: US 4322619 A

L3: Entry 31 of 37 File: USPT Mar 30, 1982

DOCUMENT-IDENTIFIER: US 4322619 A
TITLE: Optical masking radiography

DEPR:
FIG. 5 illustrates the mask film fabricated in the duplicating means with optical diffusing means. By use of the optical diffusing means, shaded gray areas 52, 54 appear related to the shaded areas 42 and 43 of the scout film shown in FIG. 4. When using optical diffusing means, a very blurred image having decreasing shades of gray from black or dark towards white along its edges is produced. The blurred character of the optical mask facilitates mask usage by precluding the necessity for precise registering of the x-ray machine, the patient or object, and the film holder and cassette in the taking of a second x-ray film, and eliminates obvious shadows of the mesh itself from appearing on the second x-ray film, as more fully discussed hereinafter.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 32. Document ID: JP 2000341519 A

L3: Entry 32 of 37 File: JPAB Dec 8, 2000

DOCUMENT-IDENTIFIER: JP 2000341519 A
TITLE: METHOD FOR IMPROVING PRINTING QUALITY

FPAR:
SOLUTION: In a method, in which distortion is prevented by making printed image and characters more distinctive by appropriately processing the image and character portions in video data, perfect video information is not necessarily required by processing video data which are to be printed immediately. The method can make side edges more distinctive and smoother with newly distributed side edge picture elements by utilizing the principle of the error diffusion method from a difference in gray level distribution in videos.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 33. Document ID: JP 03236228 A

L3: Entry 33 of 37 File: JPAB Oct 22, 1991

DOCUMENT-IDENTIFIER: JP 03236228 A
TITLE: SEMICONDUCTOR DEVICE

FPAR:
CONSTITUTION: A silicon oxide film 2 is formed on the main surface of a silicon substrate 1. Then, an impurity diffused layer 3 is formed in the silicon oxide film 2. Then, the entire surface is covered with a silicon oxide film 4. A contact hole 5 is formed on the impurity diffused layer 3. A metallic layer 7 is formed on the impurity diffused layer 3 in the contact hole 5 by pressure reduced CVD method and the like so that the layer 7 is sufficiently thinner than the silicon oxide film 4. Then, the metallic layer 7 is exposed to an oxidizing atmosphere such as atmosphere. Thus, a large amount of oxygen is diffused into the surface of the metallic layer 7 and in a gray boundary, and the metal layer 8 containing the large amount of oxygen is obtained. An uppermost metal layer 9 is embedded on the upper metallic layer 8 in the contact hole 5, and the layer 9 is flattened. Finally, the metallic film is formed, and a metallic wiring layer 10 having the intended pattern is formed by photoengraving and etching.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 34. Document ID: CN 1257685 A

L3: Entry 34 of 37 File: DWPI Jun 28, 2000

DERWENT-ACC-NO: 2000-565934
DERWENT-WEEK: 200053
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TITLE: Ferroselenium pot and its making technology
ABTX:
NOVELTY - A ferroselenium pot as cooking utensil is made of gray cast iron through die casting, spraying aluminum layer on its bottom, diffusing Se, Cu and Zn as trace elements in its body by selenate process, wrapping its edge with stainless steel sheet, and installing pot ears and handle. Its advantages are high anti-oxidizing power, long service life, and supplementing trace elements to human body.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 35. Document ID: DE 69220651 E, EP 544511 A2, CA 2077278 A, US 5268774 A, JP 05308514 A, EP 544511 A3, CA 2077278 C, EP 544511 B1

L3: Entry 35 of 37 File: DWPI Aug 7, 1997

DERWENT-ACC-NO: 1993-177267
DERWENT-WEEK: 199737
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TITLE: Quantisation of image pixel values - modifying pixel value by weighted error correction factor and comparing with adaptively determined threshold value based on dither pattern

ABEQ:
US E/ADVANTAGE - Quantising gray data using half-toning with enhanced dynamic range and edge enhance error diffusion.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 36. Document ID: US 5034990 A

L3: Entry 36 of 37 File: DWPI Jul 23, 1991

DERWENT-ACC-NO: 1991-237700
DERWENT-WEEK: 199132

TITLE: Edge enhancement error diffusion thresholding for document images - converts multilevel video images into bilevel image having accurate rendition of original image gray scale due to error diffusion techniques

TTX:
EDGE ENHANCE ERROR DIFFUSION DOCUMENT IMAGE CONVERT MULTILEVEL VIDEO IMAGE IMAGE ACCURACY RENDER ORIGINAL IMAGE GRAY SCALE ERROR DIFFUSION TECHNIQUE

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 37. Document ID: SU 636255 A

L3: Entry 37 of 37 File: DWPI Dec 10, 1978

DERWENT-ACC-NO: 1979-67508B
DERWENT-WEEK: 197937

TITLE: Arthrobotrys compacta mecht 302 - used as producer of high activity bacterial fibrinolytic enzymes for medical use

ABTX:
On a wart agar colony growth is moderate with a loose web-like appearance with fragile mycelial strands. The entire agar surface is covered in ten days, the edges being grey but later developing a rose-coloured metabolite which diffuses through the thickness of the agar.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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